

WHAT IS CLAIMED IS:

- 1 1. A motor-driven pump adapted for being submersed in fluid comprising:
2 an electric motor disposed in a motor housing, the motor containing a rotating shaft
3 extending to and supporting an impeller;
4 a motor cover fitted to the motor housing to enclose the motor, at least one of the
5 motor housing and the motor cover being provided with a pour hole through which a non-
6 conductive encapsulation material may be poured to encapsulate the motor;
7 an impeller housing that surrounds the impeller and including a fluid inlet and a
8 fluid discharge conduit for fluid flow; and
9 a multistage seal disposed between the motor and the impeller that prevents fluid
10 from contacting the motor.
- 1 2. The motor-driven pump of claim 1, wherein the motor cover is fitted on the
2 motor housing by cooperating latch means.
- 1 3. The motor-driven pump of claim 1, wherein the non-conductive
2 encapsulation material is an epoxy.
- 1 4. The motor-driven pump of claim 1, wherein an impeller cover is secured to
2 the impeller housing with an o-ring disposed therebetween to prevent fluid from leaking
3 out from within the interior of the impeller housing.
- 1 5. The motor-driven pump of claim 1, wherein a void space is provided
2 between the impeller and the seal to reduce fluid pressure build-up on the seal.
- 1 6. The motor-driven pump of claim 1, wherein the seal comprises a self-
2 aligning seal.

- 1 7. The motor driven pump of claim 6 wherein:
2 the self-aligning seal comprises a flexible sheet-like member including an
3 undersize bore and fitted over the shaft between the impeller and the motor.
- 1 8. The motor-driven pump of claim 6, wherein the seal comprises a lip seal
2 disposed between the self-aligning seal and the motor.
- 1 9. The motor-driven pump of claim 8, wherein the seal further comprises a
2 moisture barrier disposed between the lip seal and the motor.
- 1 10. The motor-driven pump of claim 9, wherein:
2 the moisture barrier comprises grease packing disposed in a cavity formed in a
3 bracket member of the motor.
- 1 11. The motor-driven pump of claim 1 further comprising electrical grounding
2 circuit that electrically neutralizes the environment in which the motor-driven pump
3 operates.
- 1 12. The motor-driven pump of claim 11, wherein the grounding circuit
2 comprises a first ground wire attached to the motor and to a wall of the motor housing and
3 a second ground wire connected on one end of a wall of the motor housing and spaced
4 from the connection of the first ground wire to the motor housing.
- 1 13. The motor-driven pump of claim 11, wherein the motor housing is stainless
2 steel and resistant to fluids that are highly corrosive.

1 14. A motor-driven pump capable of being submersed in fluid comprising:
2 a polymer-encapsulated motor encased in a motor housing, the motor containing a
3 rotating shaft extending to and supporting an impeller;
4 a motor cover fitted to the motor housing to enclose the motor, the motor cover
5 being provided with a pour hole through which polymer encapsulation material may be
6 poured to encapsulate the motor;
7 an impeller housing that surrounds the impeller with an inlet and discharge outlet
8 for fluid flow; and
9 a multistage seal disposed between the motor cover and the impeller that prevents
10 fluid from contacting the motor, the multistage seal comprising a self-aligning first lip
11 seal, a second lip seal journaled by a member forming part of the motor and a grease
12 packing moisture barrier.

1 15. A motor-driven pump adapted for being submersed in fluid comprising:
2 an electric motor disposed in a motor housing, the motor containing a rotating shaft
3 extending to and supporting an impeller;
4 a motor cover fitted to the motor housing to enclose the motor, at least one of the
5 motor housing and the motor cover being provided with a pour hole through which a non-
6 conductive encapsulation material may be poured to encapsulate the motor;
7 an impeller housing that surrounds the impeller and including a fluid inlet and a
8 fluid discharge conduit for fluid flow;
9 a multistage seal disposed between the motor and the impeller that prevents fluid
10 from contacting the motor, the multistage seal comprising a self-aligning first lip seal, a
11 second lip seal and a grease packing moisture barrier; and
12 an electrical grounding circuit that electrically neutralizes the environment in
13 which the motor-driven pump operates, wherein the grounding circuit comprises a first
14 ground wire attached to the motor and to a wall of the motor housing and a second ground
15 wire connected on one end of a wall of the motor housing and spaced from the connection
16 of the first ground wire to the motor housing.